



# Recombinant Mouse Stem Cell Factor (SCF)

20200122BB



**FOR RESEARCH ONLY! NOT FOR HUMAN USE!**

<b>Cat.-no:</b>	<b>M30-011</b>
<b>Size:</b>	50 µg
<b>Lot. No.:</b>	According to product label
<b>Country of origin:</b>	Germany

## Scientific Background

<b>Gene:</b>	<i>Kitlg</i>
<b>Synonyms:</b>	Hematopoietic growth factor KL, c-Kit ligand

Stem cell factor (SCF), also known as ckit ligand (KL), mast cell growth factor (MGF), and steel factor (SLF), is a widely expressed 28-40 kDa type I transmembrane glycoprotein (1). It promotes the survival, differentiation, and mobilization of multiple cell types including myeloid, erythroid, megakaryocytic, lymphoid, germ cell, and melanocyte progenitors (1-7). SCF is a primary growth and activation factor for mast cells and eosinophils (8). Mature mouse SCF consists of a 189 amino acid (aa) extracellular domain (ECD), a 23 aa transmembrane segment, and a 36 aa cytoplasmic tail (9). The ECD shows both N-linked and O-linked glycosylation (10). Proteolytic cleavage at two alternate sites in the extracellular juxtamembrane region releases a 25 kDa soluble molecule which is comparable to the only form produced by Steel-dickie mutant mice (11, 12). An alternately spliced isoform of mouse SCF lacks 28 aa that encompasses the primary proteolytic recognition site (13). Within the ECD of the short isoform (corresponding to this recombinant protein), mouse SCF shares 93% aa sequence identity with rat SCF and 72% 75% with canine, feline, and human SCF. Rat SCF is active on mouse and human cells, but human SCF is only weakly active on mouse cells (14). Noncovalent dimers of transmembrane or soluble SCF interact with the receptor tyrosine kinase SCF R/ckit to trigger receptor dimerization and signaling (15). SCF assists in the recovery of cardiac function following myocardial infarction by increasing the number of cardiomyocytes and vascular channels (16).

## References

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6. Wang et al, Arterioscler Thromb Vasc Biol 27 (2007);
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8. Reber et al, Eur J Pharmacol 533 (2006);
9. Huang et al, Cell 63 (1990);
10. Arakawa et al, J Biol Chem 266 (1991);
11. Majumdar et al, J Biol Chem 269 (1994);
12. Brannan et al, Proc Natl Acad Sci (1991);
13. Flanagan et al, Cell 64 (1991);
14. Martin et al, Cell 63 (1990);
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16. Kanellakis et al, Cardiovasc Res 70 (2006);

## Sequence

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MKEICGNPVTDNVKDITKLVANLFPNDYMITLNYVAGMDVLPSCWLRDMVIQ  
LSLSLTTLDDKFSNISEGLSNYSIIDKLGKIVDDLVLCEENAPKNIKESPK  
RPETRSFTPEEFFSIFNRSIDAFKDFMVASDTSDCVLSSTLGPCKDSRVSVT  
KPFMLPPVA
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## Database References

<b>Protein RefSeq:</b>	NP_038626.1
<b>Uniprot ID:</b>	P20829
<b>mRNA RefSeq:</b>	NM_013598.2

## Product Specifications

<b>Expressed in</b>	E.coli
<b>Purity</b>	> 95% by SDS-PAGE & silver stain
<b>Buffer</b>	0.5X PBS
<b>Endotoxin</b>	< 0.1ng/µg of mSCF
<b>Stabilizer</b>	None
<b>Formulation</b>	lyophilized
<b>Length (aa):</b>	165
<b>MW:</b>	18.42 kDa
<b>Result by N-terminal sequencing</b>	UNDER WORK!

**Stability:** The lyophilized mouse SCF is best stored desiccated below 0°C. Freeze/thaw cycles will result in significant loss of activity.

**Reconstitution:** Mouse SCF should be reconstituted in 50mM acetic acid or water to a concentration of 0.1 mg/ml. This solution can be diluted in water or other buffer solutions or stored at -20°C.



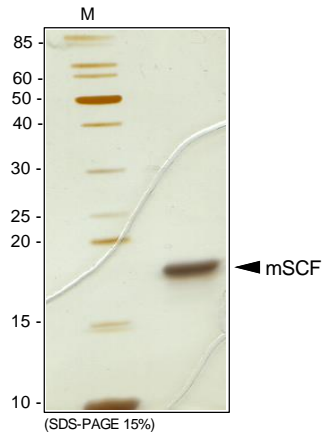
**AVOID REPEATED FREEZE AND THAW CYCLES!**

**Biological Activity:** The ED<sub>50</sub> as determined by the dose-dependent stimulation of the proliferation of the human TF-1 cell line is in the range of 2-10 ng/ml.

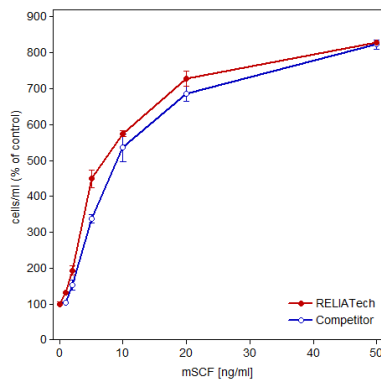


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## Handling/Application



**Fig. 1:** SDS-PAGE analysis of recombinant mouse SCF. Sample was loaded in 15% SDS-polyacrylamide gel under reducing condition and stained with Silver stain.



**Fig. 2:** Proliferation assay with TF-1 cells.